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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/562,545	12/29/2005	Akiko Yuasa	MAT-8799US	3993
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P.O. BOX 980	CE DA 10492		ZACHARIA, RAMSEY E	
VALLEY FORGE, PA 19482			ART UNIT	PAPER NUMBER
			1794	
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			07/22/2008	PAPER

# Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.  - PRODucted for reply is appetited above, the maximum satistory period vill apply and vill acpts SIX (5) MONTHS from the unating date of this communication.  - PRO puried for reply is appetited above, the maximum satistory period vill apply and vill acpts SIX (5) MONTHS from the unating date of this communication.  - PRO puried for reply is appetited above, the maximum satistory period vill apply and vill acpts SIX (5) MONTHS from the unating date of this communication.  - PRO puried for reply is appetited above, the maximum satistory period vill apply and vill acpts SIX (5) MONTHS from the unating date of this communication, even if timely flad, may reduce any carried planet imm registration.  - PRO puried for reply is appetited by the status and the replacement of the mailing date of this communication, even if timely flad, may reduce any carried planet imm requirement.  - PRO puried for reply is appetited by the status and the replacement of the mailing date of this communication.  - PRO puried for reply is application.  - PRO puried for reply is appetited by the status and the replacement of the mailing date of this communication.  - PRO puried for reply is appetited and the replacement of the mailing date of this communication.  - PRO puried for reply is appetited and the replacement of the mailing date of this communication.  - PRO puried for reply is appetited and the replacement of the mailing date of this communication.  - PRO puried for reply is application.  - PRO puried for reply is application		Application No.	Applicant(s)					
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11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.								
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Information Disclosure Statement(s) (PTO/SB/08)  5) Notice of Informal Patent Application								
	3) Information Disclosure Statement(s) (PTO/SB/08)							

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#### **DETAILED ACTION**

## Claim Rejections - 35 USC § 112

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claim 28 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. This is a new matter rejection since the disclosure as originally filed does not cite the use of "silicon nitrate" as an infrared ray reflection material. It is noted that silicon *nitride* is cited as an inorganic material that maybe used as an infrared ray reflection material on page 6 of the instant specification.

## Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

- (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.
- (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

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4. Claims 1, 2, 10, 11, and 25-27 are rejected under 35 U.S.C. 102(a) as being anticipated by JP 2003-271044.

JP 2003-271044 teach a vacuum insulation material comprising a core material covered by a laminated film (paragraph 0017). A reflective sheet, such as aluminum, is applied to the surface to reflect radiant heat (paragraph 0025).

5. Claims 1, 2, 6, 19, 21, and 25-27 are rejected under 35 U.S.C. 102(b) as being anticipated by JP 2003-074786.

JP 2003-074786 teach a vacuum insulation material comprising a core and a laminate surrounding the core (see Figures 1-7). ). The core may comprise dry silica powder and carbon black (paragraph 0016). The laminate comprises a surface protection layer (such as PET, PP or nylon) a gas barrier layer, and a heat seal layer (paragraph 0156). The insulation may be used in the door and body of a refrigerator, freezer, or vending machine (Figure 8 and paragraph 0146). The surface protection layer (e.g. PET which has a melting point of at least 200 °C) reads on a radiation heat transfer suppressor since no degree of heat transfer suppression is recited in the claims and the surface protection layer would be expected to suppress at least some heat since PET, PP, and nylon all absorb at least some IR radiation. As insulation in the door or body of a refrigerator, a space will necessarily exist between the insulation and the light bulb (i.e. heat generation source) in the refrigerator.

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#### Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

- (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.
- 7. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over JP 2003-074786 in view of Urata et al. (US 2003/0134078).

JP 2003-074786 teaches all the limitations of claim 7, as outlined above, except for the use of a fluorocarbon resin as the protective layer (since the protective layer reads on the radiation heat transfer suppressor for the reasons put forth above).

Urata et al. is directed to a vacuum heat insulator that may be used in a refrigerator (paragraph 0001). The insulator comprises a core and a gas barrier laminate having a protective layer (paragraph 0221). The protective layer may be formed of a polyester, polyamide (i.e. nylon), or a fluoroplastic (paragraph 0221).

Urata et al. show that polyesters, polyamides, and fluoroplastics are known in the art as functionally equivalent materials for forming the protective layer of a vacuum heat insulator used in refrigeration. Therefore, because these materials were art-recognized equivalents at the time the invention was made, one of ordinary skill in the art would have found it obvious to substitute a fluoroplastic for the polyester or nylon taught by JP 2003-074786.

8. Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over JP 2003-074786 in view of Himeshima et al. (US 5,693,399)

JP 2003-074786 teaches all the limitations of claim 20, as outlined above, except for the addition of an inorganic fiber to the composition of the core. However, silica is made use of for the core of JP 2003-074786.

Himeshima et al. is directed to a vacuum heat insulator for use in a refrigerator (column 1, lines 5-6). The core of the insulator may be composed of a silica powder or inorganic fibers (such as glass or ceramic fibers) singly or in combination (column 4, lines 44-53).

It would have been obvious to one skilled in the art to add an inorganic fiber to the composition of the core of JP 2003-074786 because Himeshima et al. disclose that both are known material for the core of vacuum heat insulators and it has been held that it is *prima facie* obvious to combine two compositions (e.g. silica and carbon powders of JP 2003-074786 and the glass or ceramic fibers of Himeshima et al.) each of which is taught by the prior art to be useful for the same purpose (e.g. core of vacuum heat insulator), in order to form a third composition to be used for the very same purpose. See MPEP 2144.06.

9. Claims 3-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 2003-271044 in view of Ackerman et al. (US 2003/0215640).

JP 2003-271044 teaches all the limitations of claims 3-5, as outlined above, except for the use of metal or metal oxide powders as the sheet to reflect radiant heat.

Ackerman et al. is directed to insulation comprising a thermally reflective top layer (abstract). The thermally reflective top layer comprises infrared reflecting agents, such as titania (i.e. a metal oxide) or metallic particles, in a binder (paragraphs 0021-0022).

It would have been obvious to use the thermally reflective top layer of Ackerman et al. as the radiant heat reflecting layer of JP 2003-271044 since it has been held that the selection of a known material (e.g. the thermally reflective material of Ackerman et al.) based on its suitability for its intended use (e.g. top layer of thermal insulation) supported a *prima facie* obviousness determination. See MPEP 2144.07.

10. Claims 12-16 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 2003-271044 in view of Sasaki et al. (US 4,076,889).

JP 2003-271044 teaches all the limitations of claims 12-16 and 18, as outlined above, except for the use of nickel or a metalized film as the reflective sheet used to reflect radiant heat.

Sasaki et al. is directed to a heat-insulating material designed to insulate surfaces from direct exposure to radiant heat (column 1, lines 5-9). The material is a laminate comprising a fluoroolefin polymer base having a metal layer, such as aluminum or nickel, deposited thereon (column 3, lines 47-63).

It would have been obvious to use the radiant heat reflective material of Sasaki et al. as the radiant heat reflecting layer of JP 2003-271044 since it has been held that the selection of a known material (e.g. the radiant heat reflective laminate of Sasaki et al.) based on its suitability for its intended use (e.g. protecting surfaces from radiant heat) supported a *prima facie* obviousness determination. See MPEP 2144.07.

11. Claims 23 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 2003-271044 in view of Kim et al. (US 2003/0062190).

JP 2003-271044 teaches all the limitations of claims 23 and 24, as outlined above, except for the use of a fluorocarbon resin as the heat seal material.

Kim et al. disclose that perfluoropolymers, such as those based on chlorotrifluoroethylene, may be used as heat-sealable adhesives (paragraphs 0048-0049).

It would have been obvious to use the perfluoropolymer adhesives of Kim et al. as the heat seal material of JP 2003-271044 since it has been held that the selection of a known material (e.g. the perfluoropolymer adhesives of Kim et al.) based on its suitability for its intended use (e.g. heat sealing) supported a *prima facie* obviousness determination. See MPEP 2144.07.

#### Allowable Subject Matter

- 12. Claim 8, 9, 17, and 29 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.
- 13. The following is a statement of reasons for the indication of allowable subject matter.

The invention of claims 8, 9, and 29 is directed to a vacuum heat insulator as recited in claim 1 wherein the radiation heat transfer suppressor comprises alternately laminated first and second inorganic material films wherein the first and second inorganic materials have different reflectances. The invention of claim 17 is directed to a vacuum heat insulator as recited in claim 1 wherein the radiation heat transfer suppressor comprises a polyphenylene sulfide substrate with a metal film provided on the substrate.

JP 2003-074786 and JP 2003-271044 represent the closest prior art. However, neither of these references teach or fairly suggest a vacuum heat insulator as claimed having either a

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metalized polyphenylene sulfide film or alternately laminated first and second inorganic materials having different reflectances as a radiation heat transfer suppressor.

Conclusion

14. Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Ramsey Zacharia whose telephone number is (571) 272-1518.

The examiner can normally be reached on Monday through Friday from 9 to 5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Rena Dye, can be reached at (571) 272-3186. The fax phone number for the

organization where this application or proceeding is assigned is (703) 872-9306.

Information regarding the status of an application may be obtained from the Patent

Application Information Retrieval (PAIR) system. Status information for published applications

may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

applications is available through Private PAIR only. For more information about the PAIR

system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR

system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Ramsey Zacharia/

Primary Examiner, Art Unit 1794